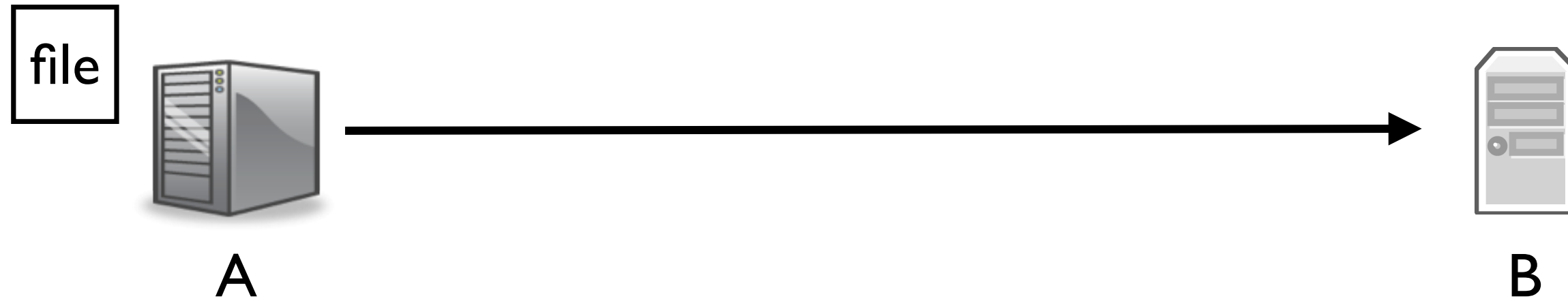
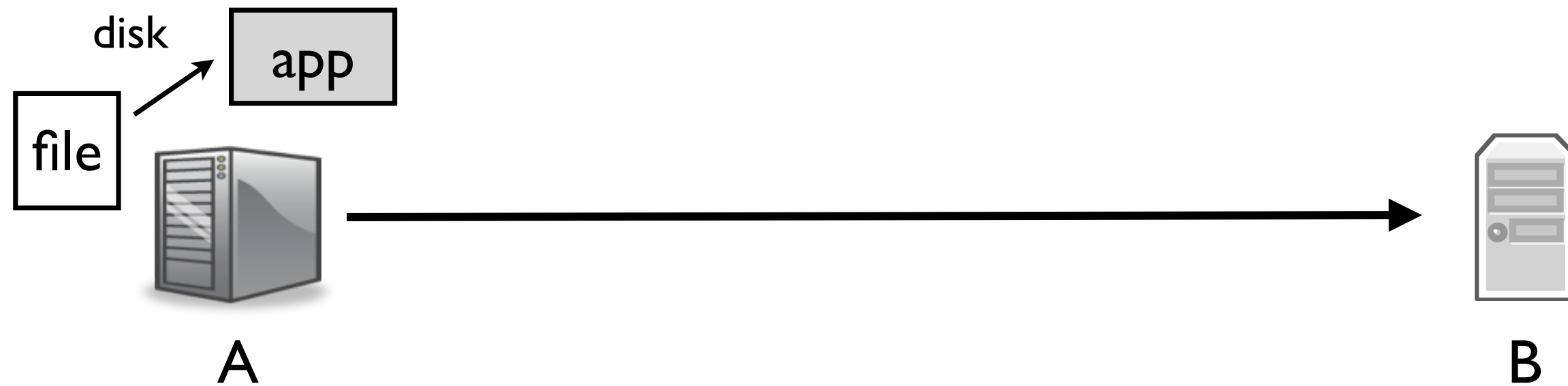


# The End-to-End Principle

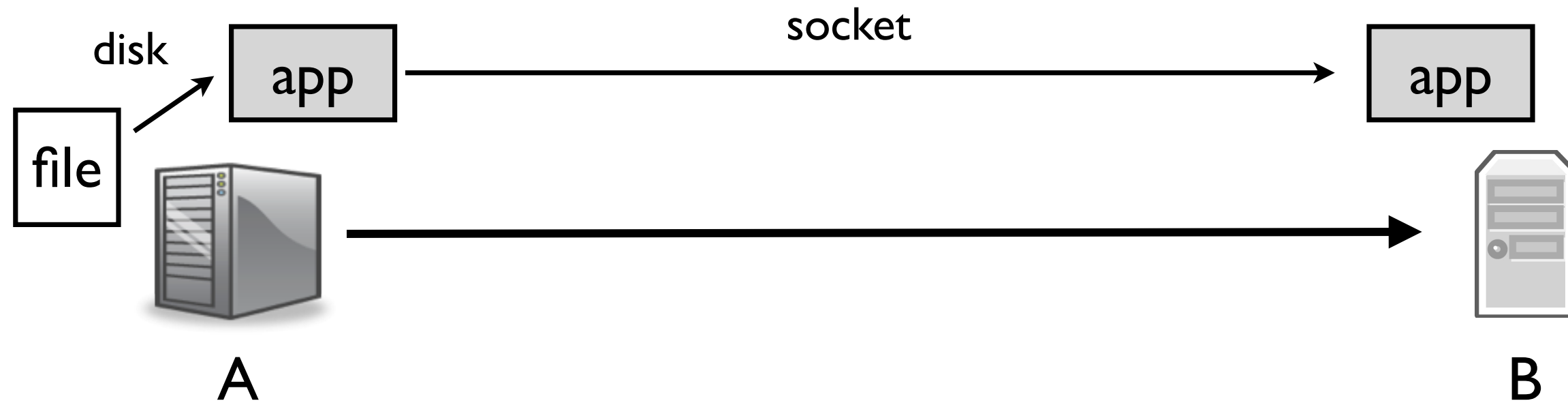
# Application View of the World



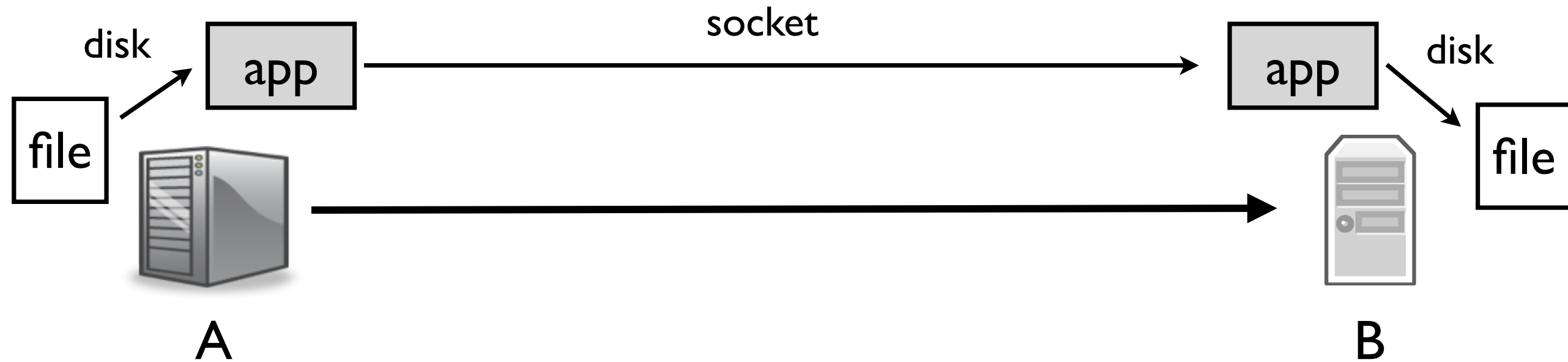
# Application View of the World



# Application View of the World



# Application View of the World



# Why Doesn't the Network Help?

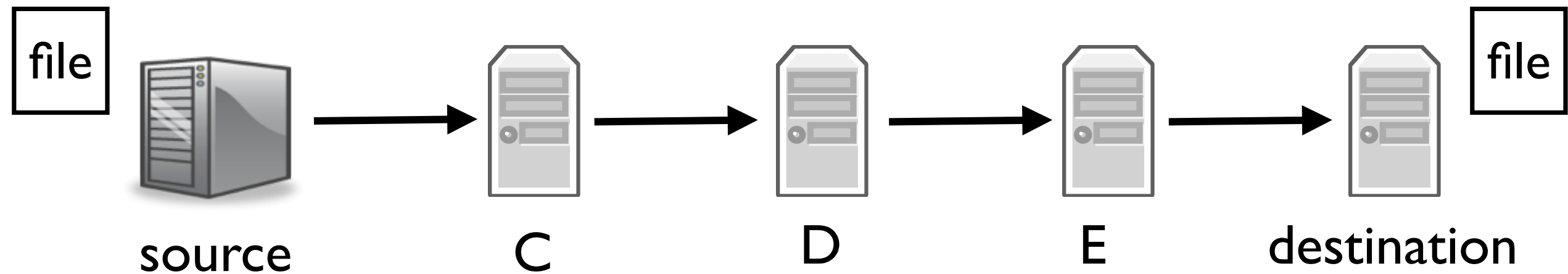
- Compress data?
- Reformat/translate/improve requests?
- Serve cached data?
- Add security?
- Migrate connections across the network?
- Or one of any of a huge number of other things?

# The End-To-End Principle

The function in question can completely and correctly be implemented only with the knowledge and help of the application standing at the end points of the communication system. Therefore, providing that questioned function as a feature of the communication system itself is not possible. (Sometimes an incomplete version of the function provided by the communication system may be useful as a performance enhancement.) We call this line of reasoning...“the end-to-end argument.”

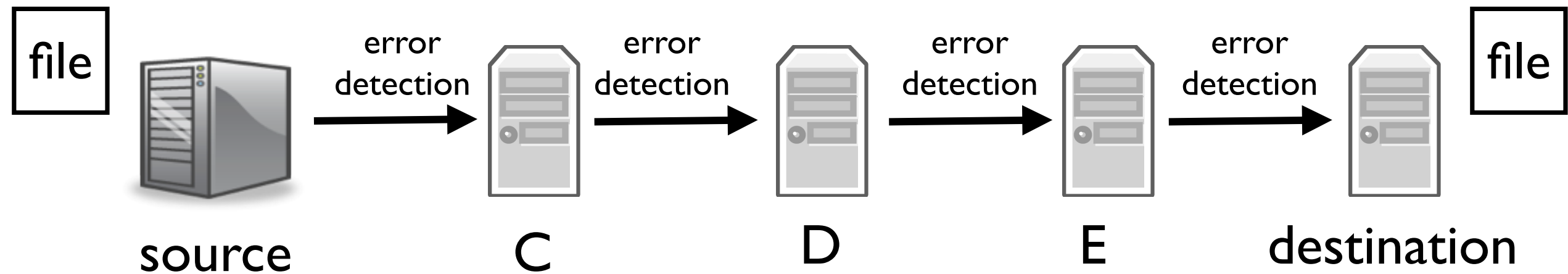
- Saltzer, Reed, and Clark,  
End-to-end Arguments in System Design, 1984

# Example: File Transfer

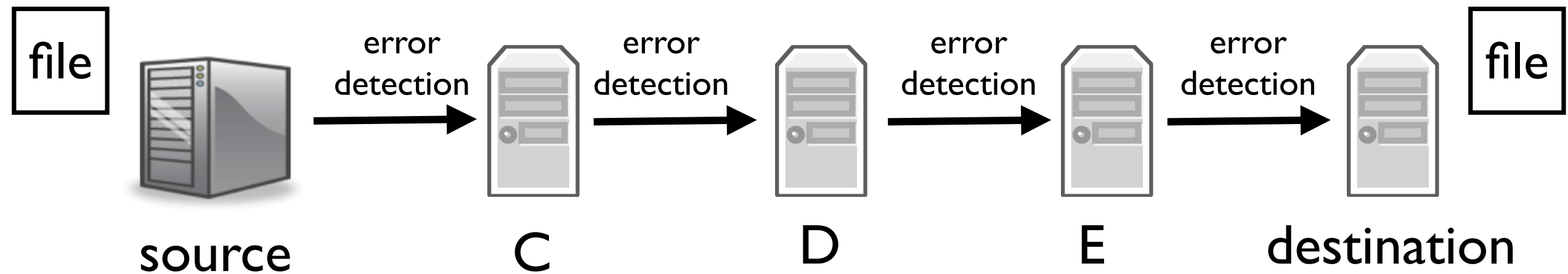




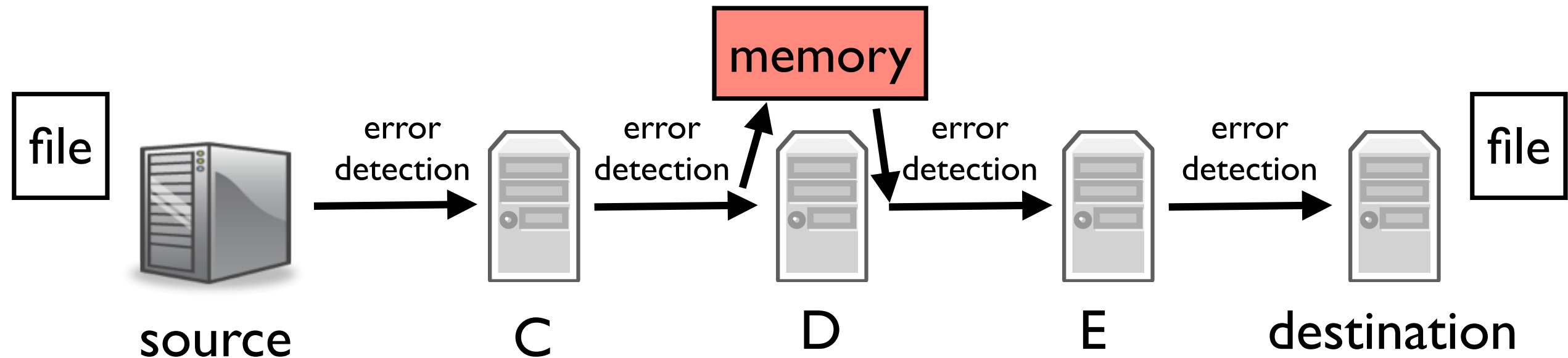
# Example: File Transfer



# Example: File Transfer



# Example: File Transfer



# Example: Link Reliability

# “Strong” End to End

The network’s job is to transmit datagrams as efficiently and flexibly as possible. Everything else should be done at the fringes...

– [RFC 1958]